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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/014,133	11/04/2001	Jenq-Neng Hwang	HMTG03	1017

7590 12/16/2004  
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EXAMINER
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RIVERO, MINERVA

ART UNIT	PAPER NUMBER
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2655

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/014,133	<b>Applicant(s)</b> HWANG ET AL.	
	<b>Examiner</b> Minerva Rivero	<b>Art Unit</b> 2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. The terms "most important" and "less influential" in claims 1 and 2, respectively, are relative terms that render the claim indefinite. The terms "most important" and "less influential" are not defined by the claims, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The Examiner has interpreted the terms to define the frequency range relevant to speech (i.e. 250 Hz – 6 KHz) and will further treat the aforementioned claims on the merits.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-2 and 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker *et al.* (US Patent 5,890,109) in view of Dubnowski *et al.* (US Patent 4,015,088).

6. Regarding claim 1, Walker *et al.* disclose means (adaptive threshold determination) to adaptively update the silence threshold value by incorporating the new background signal magnitude (*classifier reacts to changes in ambient background*, Col. 8, Line 57 – Col. 9, Line 17).

While Walker *et al.* disclose means to measure uttered speech (Col. 5, Lines 22-27), they do not explicitly disclose measuring the most important portion of speech. However, Dubnowski *et al.* disclose means to measure the most important portion of uttered speech (*frequencies of interest*, Col. 5, Lines 50-54).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Walker *et al.* by measuring the most important portion of uttered speech as taught by Dubnowski *et al.* in order to avoid processing irrelevant data that could lead to false speech detection.

1. Regarding claim 2, Walker *et al.* do not explicitly disclose but Dubnowski *et al.* do disclose techniques to low pass the speech signal so as to remove the less influential high-frequency of speech for an effective calculation of speech magnitude (Col. 5, Lines 50-54; Col. 16, Lines 6-9).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Walker *et al.* with *low-passing* the speech signal to remove the less influential high-frequency component of speech for an effective calculation of speech magnitude as taught by Dubnowski *et al.* to avoid processing irrelevant data that could lead to false speech detection.

2. Regarding claim 4, Walker *et al.* disclose

techniques to effectively measure the potential presence of speech by measuring the temporal variation of calculated speech magnitude (*sample magnitude*, Col. 5, Lines 22-27; *computing the mean energy values of silent and non-silent frames and storing the past values*, Col. 7, Line 64 – Col. 8, Line 22). The temporal variation (*energy tau*) is used in the determination of a silent or non-silent frame (speech frame).

3. Regarding claim 5, Walker *et al.* disclose

techniques to update the silence threshold value by incorporating the temporal variations of speech magnitude (*computing mean values for frame energy using the previous N frames, classifier reacts to changes in the background conditions*, Col. 8, Line 57 – Col. 9, Line 17; *thresholds are dynamically generated*, Col. 11, Lines 3-10; *re-initializing thresholds after a certain number of frames*, Col. 12, Lines 3-7).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Walker *et al.* (US Patent 5,890,109) in view of Dubnowski *et al.* (US Patent 4,015,088), as applied to claim 1, and further in view of Gersho *et al.* (US 2001/0023396).

The combined teachings of Walker *et al.* and Dubnowski *et al.* do not explicitly disclose but Gersho *et al.* do disclose techniques for removing the DC component of the speech signal, which is commonly microphone dependent, for an effective calculation of speech magnitude ([0154] Lines 3-5; [0062] Lines 8-10).

Therefore it would have been obvious to one ordinarily skilled in the art at the time of the invention to supplement the teachings of Walker *et al.* with techniques to remove the DC component of the speech signal, which is commonly microphone dependent, for an effective calculation of speech magnitude, as taught by Gersho *et al.*

in order to capture only the frequencies of interest regarding speech and avoid misleading speech or silence detection.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Walker *et al.* (US Patent 5,978,756) disclose a method of detecting and processing silent periods in a speech signal where silence-detection thresholds are updated after a certain number or silence frames have been detected.

Sewall *et al.* (US Patent 6,708,146) disclose a method of classifying speech signals using two determination stages comprising linear and non-linear discriminant functions.

Art Unit: 2655

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minerva Rivero whose telephone number is (703) 605-4377. The examiner can normally be reached on Monday-Friday 9:00 am - 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (703) 305-9508. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MR 12/08/2004



TĀLIVALDIS IVARS ŠMITS  
PRIMARY EXAMINER